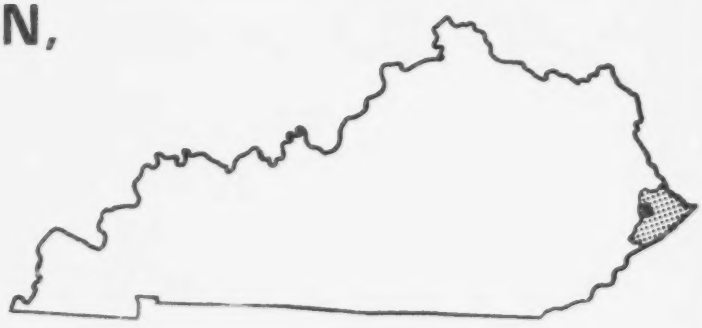
FLOOD INSURANCE STUDY

VILLAGE OF COAL RUN, KENTUCKY

PIKE COUNTY



FEBRUARY 2, 1990

Federal Emergency Management Agency

COMMUNITY NUMBER 210263

NOTICE TO
FLOOD INSURANCE STUDY USERS

Communities participating in the National Flood Insurance Program have established repositories of flood hazard data for floodplain management and flood insurance purposes. This Flood Insurance Study may not contain all data available within the repository. It is advisable to contact the community repository for any additional data.

This publication incorporates revisions to the original Flood Insurance Study. These revisions are presented in Section 9.0.

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FLOOD INSURANCE STUDY

VILLAGE OF COAL RUN,
PIKE COUNTY, KENTUCKY

1.0 INTRODUCTION

1.1 Purpose of Study

The purpose of this Type 19 Flood Insurance Study is to investigate the existence and severity of flood hazards in the Village of Coal Run, Pike County, Kentucky, and to aid the administration of the Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973. Intitial use of this information will be to revise Flood Insurance Rate Maps developed from data presented in the Type 15 Flood Insurance Study. Further use of the information will be made by local and regional planners in their efforts to promote sound land use and flood plain management.

In some states or communities, flood plain management criteria or regulations may exist that are more restrictive or comprehensive than those on which these Federally-supported studies are based. These criteria take precedence over the minimum Federal criteria for purposes of regulating development in the flood plain, as set forth in the Code of Federal Regulations at 44 CFR, 60.3. In such cases, however, it shall be understood that the state (or other jurisdictional agency) shall be able to explain these requirements and criteria.

1.2 Authority and Acknowledgements

The sources of authority for this Flood Insurance Study are the National Flood Insurance Act of 1968 and the Flood Disaster Protection Act of 1973.

The hydrologic and hydraulic analyses for this study were performed by the U.S. Army Corps of Engineers (COE), Huntington District, the Study Contractor, for the Federal Emergency Management Agency (FEMA), under Inter-Agency Agreement No. IAA-H-9-79, Project Order No. 26. This study was completed in October 1982.

1.3 Coordination

On December 7, 1978, an initial coordination meeting was held in the Pike County Courthouse between representatives of FEMA, the Commonwealth of Kentucky, Village of Coal Run, and the COE. At this meeting, the nature and purpose of the Flood Insurance Study were explained, study streams were identified, and study limits were established. The methodology to be used in the study and the floodway concept were discussed. An announcement of the initiation of the study and a request for flooding information was published in local newspapers at the outset of the study.

On September 28, 1983, the results of the work by the Study Contractor were reviewed and accepted at a final coordination meeting attended by representatives of the Study Contractor, FEMA, and the community.

2.0 AREA STUDIED

2.1 Scope of Study

This Flood Insurance Study covers the incorporated area of the Village of Coal Run, Pike County, Kentucky. The area of study is shown on the Vicinity Map (Figure 1).

The areas studied by detailed methods were selected with priority given to all known flood hazard areas and areas of projected development or proposed construction through October 1987. Flooding from Levisa Fork, within the corporate limits, was studied in detail.

Approximate analyses were used to study those areas having a low development potential or minimal flood hazards as identified at the initiation of the study. The scope and methods of study were proposed to and agreed upon by FEMA and the Village of Coal Run.

2.2 Community Description

The Village of Coal Run is located in northwestern Pike County, the easternmost county of Kentucky. The village borders Pikeville, the county seat, along the Levisa Fork of the Big Sandy River at its southeastern corporate boundary. The village borders the unincorporated areas of Pike County on all sides. In 1980, the population of Coal Run was reported to be 348 (Reference 1), an increase of 48 percent over the 1970 census figures.

The climate of the area is humid mesothermal, where there is considerable fluctuation in the extremes of daily, monthly, and annual temperatures, and precipitation. Normal monthly average temperatures range from 37 degrees Fahrenheit (F.) in January to 76 degrees F. in July and August. Precipitation averages 41 inches of rain and 16 inches of snow annually.

Extensive deposits of high grade coal have fostered the development of a large mining industry in the study area. Considerable damage has been caused in the surrounding areas in connection with coal removal. Specifically, contour mining, moutain top removal, head-of-the hollow fills, and other mining practices have affected the general area. Coal production and its satellite industries will probably continue for many years to be the principal source of income. The topography prohibits extensive agricultural development and manufacturing is of slight importance. Although lumbering operations have declined in recent years, timber production will undoubtedly continue as an important activity.

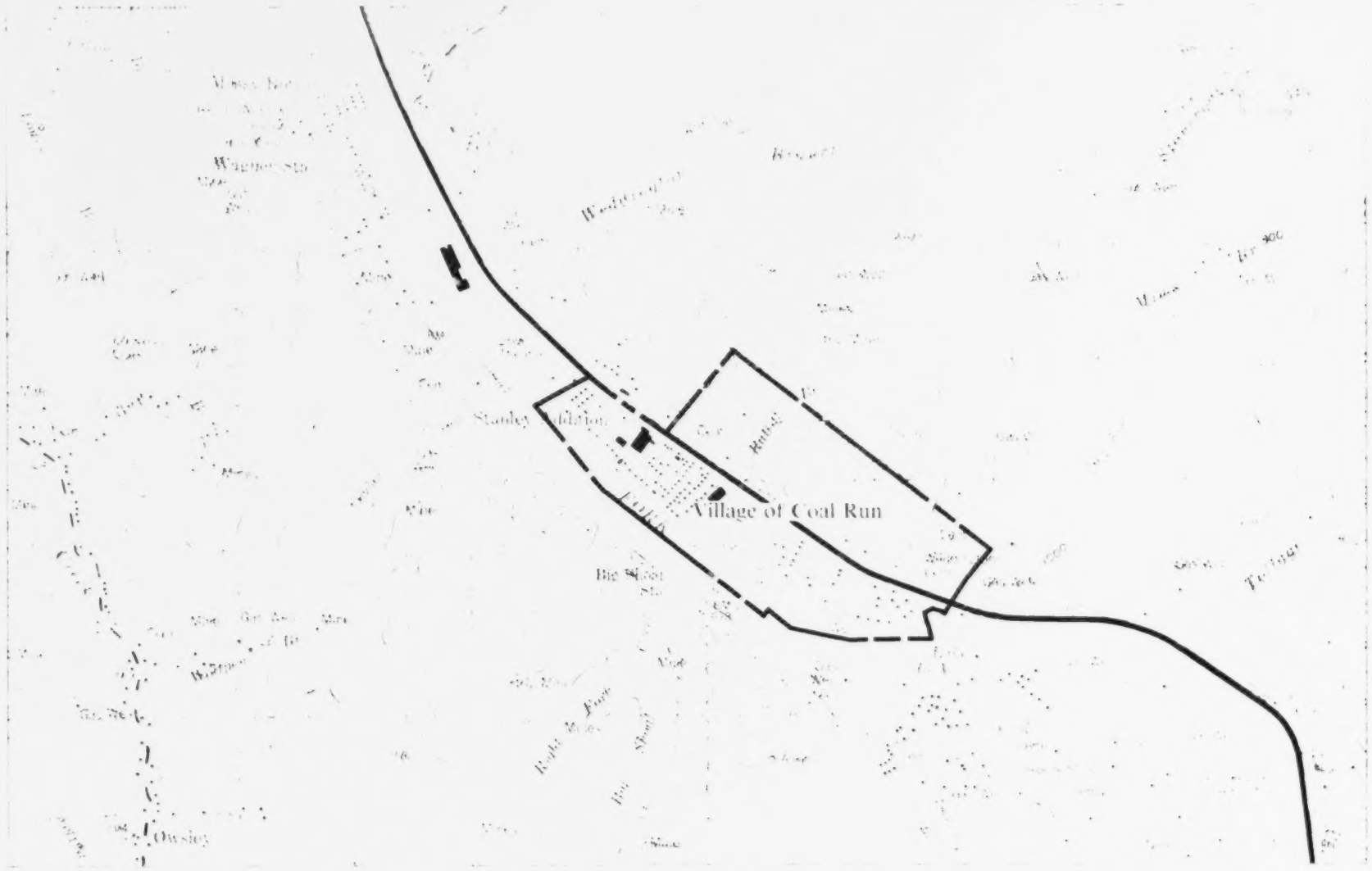


FIGURE 1

FEDERAL EMERGENCY MANAGEMENT AGENCY

VILLAGE OF COAL RUN, KY
(PIKE CO.)

APPROXIMATE SCALE

2000 0 2000 4000 6000 FEET

VICINITY MAP

The Coal Run area comprises part of a rugged, maturely dissected plateau made up of steep-sided ridges and a maze of narrow and twisting, deeply cut stream valleys. The total relief of the Big Sandy basin is about 3,000 feet. The flood plain area of Coal Run is about 5,000 feet long and 1,200 feet wide. Levisa Fork, bordering Coal Run to the west, flows in a northwesterly direction. Its gradient is approximately 1 foot per mile through the community. The drainage area upstream from Coal Run is approximately 1,245 square miles.

Developable land in the area is generally limited to the narrow flood plain along Levisa Fork and its tributaries. Coal mining and related activities have concentrated a relatively large population into densely populated ribbons of settlement that occupy the flood plains of the river and its tributaries. Most of the Coal Run area is occupied by residential, commercial, and public development, but about 37 acres of land are vacant and approximately 15 acres are under cultivation. There are 34 commercial structures, including a bottling company, two furniture stores, and a small shopping mall.

2.3 Principal Flood Problems

The history of flooding on Levisa Fork indicates that flooding has occurred during all seasons of the year. However, winter and spring floods have been more frequent than summer floods. Summer thunderstorms are usually the result of conventional frontal activity of convectional or orographic origin. These storms are usually confined to relatively small areas and are of short duration with high intensity rates. Precipitation in the late fall, winter, and early spring generally results from the passage of a low-pressure system over the basin. Occasional stagnation and stationary development produces prolonged precipitation.

The Coal Run area is affected by mainstem headwater flooding of Levisa Fork. The floods provide little advance warning and recede quickly after the flood crest is reached. Significant flooding took place in the area in the years 1957, 1963, and 1977 with considerable damage to residences and contents, businesses, utilities, gardens, etc. First floor flooding begins at about the 50-year frequency.

The maximum flood of record on Levisa Fork occurred in January 1957 and had a stage of 52.7 feet at Pikeville. The most recent flood occurred in April 1977 and reached a stage of 51.7 feet at Pikeville. Upstream reservoirs provided an estimated 13.6 feet of stage reduction during the 1977 flood at the Pikeville Gage.

The major flood problems concern damage to improvements such as buildings and their contents, highways, railroads, and utilities. Flash floods generally occur without sufficient warning to permit removal of business stocks and equipment, house furnishings, and in many cases, automobiles to above flood level. Coal washing wastes piled along the main and tributary streams during normal operations wash into the streams, with the finer materials being mixed with silt and sand and deposited in buildings, streets, and yards, thereby presenting difficult and expensive cleanup problems after floods. Principal means of access in the valleys are inundated or damaged, paralyzing business activities in some areas not otherwise affected.

2.4 Flood Protection Measures

Two large multipurpose reservoirs provide considerable flood protection for Coal Run. Fishtrap Lake on Levisa Fork, approximately 21 miles above Coal Run, was authorized by the Flood Control Act of 1938 (P.L. 75-761). The dam was completed in 1969 and controls runoff from a drainage area of 392 square miles. J.W. Flannagan Lake on the Pound River, a tributary of Russell Fork of Levisa Fork, is about 2 miles above the mouth of the Pound River and 123 miles above the mouth of Levisa Fork. It was authorized by the Flood Control Act of 1938 and the Federal Water Pollution Control Act Amendments of 1961 (P.L. 87-88). The dam was completed in 1963 and controls runoff from 221 square miles. These lakes are operated for flood control, low flow augmentation, fish and wildlife conservation, and recreation. As a result of these projects, flood stages are reduced considerably at Coal Run. A similar multipurpose reservoir, located on North Fork of the Pound River and upstream of J.W. Flannagan Lake and Pound, Virginia, operates as a system with J.W. Flannagan Lake for downstream flood flow reductions.

3.0 ENGINEERING METHODS

For the flooding sources studied in detail in the community, standard hydrologic and hydraulic study methods were used to determine the flood hazard data required for this study. Flood events of a magnitude which are expected to be equaled or exceeded once on the average during any 10-, 50-, 100-, or 500-year period (recurrence interval) have been selected as having special significance for flood plain management and for flood insurance rates. These events, commonly termed the 10-, 50-, 100-, and 500-year floods, have a 10, 2, 1, and 0.2 percent chance, respectively, of being equaled or exceeded during any year. Although the recurrence interval represents the long term average period between floods of a specific magnitude, rare floods could occur at short intervals or even within the same year. The risk of experiencing a rare flood increases when periods greater than 1 year are considered. For example, the risk of having a flood which equals or exceeds the 100-year flood (1 percent chance of annual exceedence) in any 50-year period is approximately 40 percent (4 in 10), and, for any 90-year period, the risk increases to approximately 60 percent (6 in 10). The analyses reported herein reflect flooding potentials based on conditions existing in the community at the time of completion of this study. Maps and flood elevations will be amended periodically to reflect future changes.

3.1 Hydrologic Analyses

Hydrologic analyses were carried out to establish the peak discharge-frequency relationships for floods of the selected recurrence intervals for each flooding source studied in detail affecting the community.

Natural discharge-frequency curves used in this study were developed from gage data on a regional basis in accordance with "Statistical Methods in Hydrology" (Reference 2) and the U.S. Water Resources Council Bulletin No. 17 (Reference 3).

Floodflow frequency analysis utilized the computer program, "Flood Flow Frequency Analysis" (Reference 4). Twenty U.S. Geological Survey stream gaging stations in the surrounding drainage basins displaying similar hydrologic characteristics were used in the regional analysis. Two of these stations are located upstream of Coal Run, on Levisa Fork at Pikeville and Russell Fork at Elkhorn City. Periods of record range from 16 to 70 years and represent drainage areas of 31 to 3,892 square miles (References 5 and 6). An "n" value of 60 years was adopted as being representative and was used in computing the expected frequency for each evaluation center. Discharges on Levisa Fork were modified by a routing procedure to account for the flood control effects of Flannagan and Fishtrap Lakes.

Peak discharges for the 10-, 50-, 100-, and 500-year floods of each flooding source studied in detail in the community are shown in Table 1.

TABLE 1 - SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (SQ MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
LEVISA FORK					
Floyd-Pike County line	1,275	35,000	50,000	57,000	75,000
At Coal Run	1,245	34,100	48,700	55,500	73,200

3.2 Hydraulic Analyses

Analyses of the hydraulic characteristics of the streams in the community were carried out to provide estimates of the elevations of the floods of the selected recurrence intervals along each flooding source studied in detail.

Cross section data for streams in the area were obtained from field surveys made between January and March 1981. Elevation data and structural geometry for bridges and culverts were obtained by either field surveys or from information provided by the Kentucky Bureau of Highways and the Chessie System.

Locations of selected cross sections used in the hydraulic analyses are shown on the Flood Profiles. For stream segments for which a floodway was computed (Section 4.2), selected cross section locations are also shown on the Flood Boundary and Floodway Map.

Starting water-surface elevations for Levisa Fork were taken from the Pike County, Unincorporated Areas, Kentucky Flood Insurance Study (Reference 7).

Water-surface profiles were developed using the HEC-2 step-backwater computer model (Reference 8).

Channel roughness coefficients (Manning's "n") for water surface computations were determined by characteristics of historical floods in the study reach and existing flood plain conditions. On Levisa Fork, "n" values were verified by reproducing high water profiles from the 1977 flood (approximately 500-year frequency) with the HEC-2 computer program, and range from 0.03-0.04 in the channel and 0.05-0.09 in the overbanks.

Flood profiles were drawn showing the computed water-surface elevations for floods of the selected recurrence intervals.

The hydraulic analyses for this study are based only on the effects of unobstructed flow. The flood elevations shown on the profiles are, thus, considered valid only if hydraulic structures remain unobstructed, operate properly, and do not fail.

All elevations are referenced from National Geodetic Vertical Datum of 1929 (NGVD). Elevation reference marks used in the study are shown on the maps.

4.0 FLOOD PLAIN MANAGEMENT APPLICATIONS

The National Flood Insurance Program encourages state and local governments to adopt sound flood plain management programs. Therefore, each Flood Insurance Study includes a flood boundary map designed to assist communities in developing sound flood plain management measures.

4.1 Flood Boundaries

In order to provide a national standard without regional discrimination, the 100-year flood has been adopted by FEMA as the base flood for purposes of flood plain management measures. The 500-year flood is employed to indicate additional areas of flood risk in the community. For each stream studied in detail, the boundaries of the 100-year and the 500-year floods have been delineated using the elevations determined at each cross section; between cross sections the boundaries were interpolated using aerial photogrammetric strip mapping at a scale of 1:14400, photoenlarged to a scale of 1:2400 (Reference 9).

The boundaries of the 100- and 500-year floods are shown on the Flood Boundary and Floodway Map. Small areas within the flood boundaries may lie above the flood elevations and, therefore, not be subject to flooding; owing to lack of detailed topographical information or to limitations of the map scale, such areas are not shown. In cases where the 100-year and the 500-year flood boundaries are close together, only the 100-year boundary has been shown.

4.2 Floodways

Encroachment on flood plains, such as artificial fill, reduces the flood-carrying capacity, increases the flood heights of streams, and increases flood hazards in areas beyond the encroachment itself. One aspect of flood plain management involves balancing the economic gain from flood plain

development against the resulting increase in flood hazard. For purposes of the National Flood Insurance Program, the concept of a floodway is used as a tool to assist local communities in this aspect of flood plain management. Under this concept, the area of the 100-year flood is divided into a floodway and a floodway fringe. The floodway is the channel of a stream plus any adjacent flood plain areas that must be kept free of encroachment in order that the 100-year flood may be carried without substantial increases in flood heights. Minimum standards of FEMA limit such increases in flood heights to 1.0 foot, provided that hazardous velocities are not produced. No local ordinances on floodways have more restrictive criteria. The floodway in this report is proposed to local agencies as minimum standards that can be adopted or that can be used as a basis for additional studies.

The floodway presented for this study was computed on the basis of equal conveyance reduction from each side of the flood plain. The results of these computations were tabulated at selected cross sections for each stream segment for which a floodway was computed and are presented in Table 2, Floodway Data.

As shown on the Flood Boundary and Floodway Map, the floodway widths were determined at cross sections; between cross sections, the boundaries were interpolated. In cases where the boundaries of the floodway and the 100-year flood are either close together or collinear, only the floodway boundary has been shown.

The area between the floodway and the boundary of the 100-year flood is termed the floodway fringe. The floodway fringe thus encompasses the portion of the flood plain that could be completely obstructed without increasing the water-surface elevation of the 100-year flood more than 1.0 foot at any point. Typical relationships between the floodway and the floodway fringe and their significance to flood plain development are shown in Figure 2.

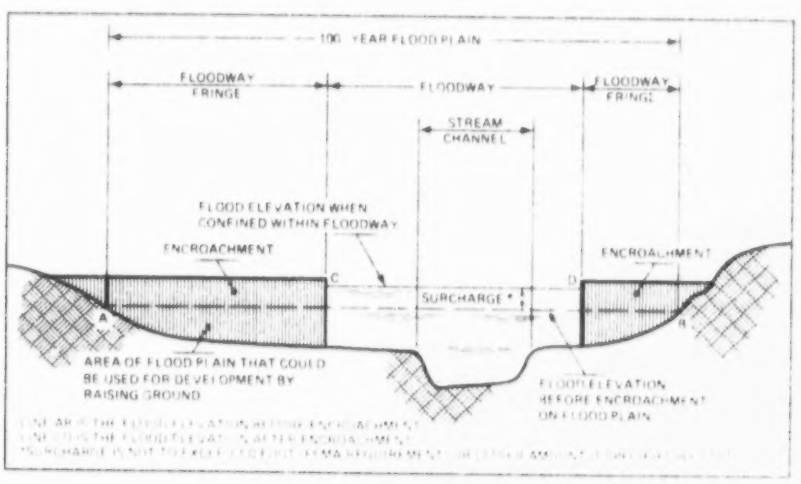


FIGURE 2 - Floodway Schematic

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER SURFACE ELEVATION			
CROSS SECTION	DISTANCE[1]	WIDTH[2] (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC.)	REGULATORY (FEET NGVD)	WITHOUT FLOODWAY (FEET NGVD)	WITH FLOODWAY (FEET NGVD)	INCREASE (FEET)
LEVISA FORK								
A	81.685	580	13,795	4.4	669.6	669.6	670.6	1.0
B	81.849	488	12,548	4.9	669.6	669.6	670.6	1.0
C	81.985	424	11,774	5.2	669.7	669.7	670.7	1.0
D	82.136	273	9975	6.1	669.7	669.7	670.6	0.9
E	82.332	553	12,574	4.8	670.1	670.1	671.1	1.0
F	82.507	696	15,763	3.9	670.4	670.4	671.4	1.0
G	82.697	395	13,984	4.4	670.5	670.5	671.4	0.9
H	82.738	608	17,503	3.5	670.8	670.8	671.6	0.8

[1]MILES ABOVE MOUTH
[2]THIS WIDTH EXTENDS BEYOND CORPORATE LIMITS

REVISED 2-7-96

TABLE 2

FEDERAL EMERGENCY MANAGEMENT AGENCY

VILLAGE OF COAL RUN, KY
(PIKE CO.)

FLOODWAY DATA

LEVISA FORK

The floodways in this report are recommended to local agencies as minimum standards that can be adopted or that can be used as a basis for additional studies.

5.0 INSURANCE APPLICATION

In order to establish actuarial insurance rates, FEMA has developed a process to transform the data from the engineering study into flood insurance criteria. This process includes the determination of reaches, Flood Hazard Factors (FHF), and flood insurance zone designations for each flooding source affecting the Village of Coal Run.

5.1 Reach Determinations

Reaches are defined as lengths of watercourses having relatively the same flood hazard, based on the average weighted difference in water-surface elevations between the 10- and 100-year floods. This difference does not have a variation greater than that indicated in the following table for more than 20 percent of the reach.

Average Difference Between 10- and 100-year Floods	Variation
Less than 2 feet	0.5 foot
2 to 7 feet	1.0 foot
7.1 to 12 feet	2.0 feet
More than 12 feet	3.0 feet

The location of the reach determined for the Village of Coal Run is shown on the Flood Profiles and is summarized in Table 3, Flood Insurance Zone Data.

5.2 Flood Hazard Factors

The Flood Hazard (FHF) is used to establish relationships between depth and frequency of flooding in any reach. This relationship is then used with depth-damage relationships for various classes of structures to establish actuarial insurance rate tables.

The FHF for a riverine reach is the average weighted difference between the 10- and 100-year flood water-surface elevations rounded to the nearest 0.5 foot, multiplied by 10, and shown as a 3-digit code. For example, if the difference between elevations is 0.7 foot, the FHF is 005; if the difference is 1.4 feet, the FHF is 015; if the difference is 5.0 feet, the FHF is 050. When the difference is greater than 10.0 feet, it is rounded to the nearest whole foot.

5.3 Flood Insurance Zones

After the determination of reaches and their respective FHFs, the entire incorporated area of the Village of Coal Run was divided into zones, each having a specific flood potential or hazard. Each zone was assigned one of the following flood insurance zone designations:

Zone A:	Special Flood Hazard Areas inundated by the 100-year flood, determined by approximate methods; no base flood elevations are shown or FHFs determined.
Zone A19:	Special Flood Hazard Areas inundated by the 100-year flood, determined by detailed methods; base flood elevations are shown, and zones subdivided according to FHF.
Zone B:	Areas between the Special Flood Hazard Area and the limits of the 500-year flood, including areas of the 500-year flood plain that are protected from the 100-year flood by dike, levee, or other water control structure; or areas subject to certain types of 100-year shallow flooding where depths are less than 1.0 foot; and areas subject to 100-year flooding from sources with drainage areas less than 1 square mile. Zone B is not subdivided.
Zone C:	Areas of minimal flooding.

Table 3, Flood Insurance Zone Data, summarizes the flood elevation differences, FHFs, flood insurance zones, and base flood elevations for each flooding source studied in detail in the community.

5.4 Flood Insurance Rate Map Description

The Flood Insurance Rate Map for the Village of Coal Run is, for insurance purposes, the principal result of the Flood Insurance Study. This map (published separately) contains the official delineation of flood insurance zones and base flood elevation lines. Base flood elevation lines show the locations of the expected whole-foot water-surface elevations of the base (100-year) flood. This map is developed in accordance with the latest flood insurance map preparation guidelines published by FEMA.

6.0 OTHER STUDIES

A Flood Insurance Study is currently in progress for Pike County, Unincorporated Areas, Kentucky (Reference 7). This study will match that report exactly.

A Type 15 Flood Insurance Study for Coal Run was published by FEMA (Reference 10). Flood elevations from this Flood Insurance Study are about 2 feet higher on Levisa Fork than shown on the FIRM for the previous Flood Insurance Study because previous elevations were estimates and were not based on detailed flood profiles determined from more up-to-date data. Type 19 Flood Insurance Studies are currently being prepared for the City of Pikeville and Pike County, Unincorporated Areas, Kentucky (References 11 and 12). These are in agreement with this study.

FLOODING SOURCE	PANEL[1]	ELEVATION DIFFERENCE[2] BETWEEN 1.0% (100-YEAR) FLOOD AND			FLOOD HAZARD FACTOR	ZONE	BASE FLOOD ELEVATION[3] (NGVD)
		10% (10-YEAR)	2% (50-YEAR)	0.2% (500-YEAR			
LEVISA FORK REACH 1	0001	−9.3	−2.3	5.8	095	A19	VARIES-SEE MAP

[1]FLOOD INSURANCE RATE MAP PANEL
[2]WEIGHTED AVERAGE
[3]ROUNDED TO NEAREST FOOT

TABLE 3

FEDERAL EMERGENCY MANAGEMENT AGENCY

VILLAGE OF COAL RUN, KY
(PIKE CO.)

FLOOD INSURANCE ZONE DATA

LEVISA FORK

This report either supersedes or is compatible with all previous studies published on streams studied in this report and should be considered authoritative for the purposes of the National Flood Insurance Program.

7.0 LOCATION OF DATA

Information concerning the pertinent data used in preparation of this study can be obtained by contacting the Natural and Technological Hazards Division, Federal Emergency Management Agency, 1375 Peachtree Street, N.E., Suite 778, Atlanta, Georgia 30309.

8.0 REFERENCES AND BIBLIOGRAPHY

1. U.S. Department of Commerce, Bureau of the Census, 1980 Census of Population, Number of Inhabitants, Kentucky, Washington, D.C., February 1982.

2. Beard, Leo R., Statistical Methods in Hydrology, Sacramento, California, January 1962.

3. U.S. Water Resources Council, Bulletin No. 17, Guidelines for Determining Flood Flow Frequency, March 1976.

4. ————, Computer Program, Flood Flow Frequency Analysis, October 1976.

5. U.S. Geological Survey, Surface Water Supply of the United States, 1913-1974.

6. U.S. Army Corps of Engineers, Huntington District, Surface Water Supply and Records, 1913-1976.

7. U.S. Department of Housing and Urban Development, Flood Insurance Administration, Flood Insurance Study, Pike County, Unincorporated Areas, Kentucky, December 1979 (revision in progress).

8. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water-Surface Profiles Generalized Computer Program, Error 04, Mod. 96, May 1980.

9. Wolpert Consultants, Dayton, Ohio, Aerial Photographs, Scale 1:14400, Contour Interval 5 feet, April 1980.

10. U.S. Department of Housing and Urban Development, Federal Insurance Administration, Flood Insurance Study, Village of Coal Run, Kentucky, December 1979.

11. Federal Emergency Management Agency, Type 19 Flood Insurance Study, City of Pikeville, Kentucky (in progress).

12. ————, Type 19 Flood Insurance Study, Pike County, Unincorporated Areas, Kentucky (in progress).

9.0 REVISIONS DISCRIPTION

This section has been added to provide information regarding significant revisions made since the original Flood Insurance Study was printed. Future revisions may be made that do not result in the republishing of the Flood Insurance Study report. To assure that any user is aware of all revisions, it is advisable to contact the Village Clerk.

9.1 First Revision (Revised February 2, 1990)

a. Acknowledgments

The hydrologic and hydraulic analyses for this Revisions Description were performed by the U.S. Army Corps of Engineers (COE), Huntington District. The Federal Emergency Management Agency (FEMA) reviewed and accepted those data for purposes of this revision.

b. Scope

This Flood Insurance Study was revised as a result of revised discharges for Levisa Fork. The base flood elevations, flood boundaries, and floodway were revised for the entire length of Levisa Fork within the Village of Coal Run. In addition, the format of this Flood Insurance Study was revised to reflect the new FEMA Map Initiative Project format. All information previously shown on the Flood Boundary and Floodway Map was transferred to the Flood Insurance Rate Map and the zone designations were changed according to the new format.

c. Hydrologic and Hydraulic Analyses

The hydrologic analyses were performed by the COE using the same procedures described in Section 3.1 of this report. However, additional years of stream gage records (from 1976 to 1985) were used, resulting in revised discharges. Those discharges are given in Table 4, Revised Summary of Discharges.

TABLE 4 - REVISED SUMMARY OF DISCHARGES

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (SQ MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
LEVISA FORK at Coal Run	1,245	33,000	51,200	60,900	88,100

The HEC-2 step-backwater computer model (Reference 13) that was used for the previously effective Flood Insurance Study was revised using the new discharges that were developed by the COE. The cross sections and roughness coefficients (Manning's "n") were not revised.

d. Floodways

Floodway computations for Levisa Fork were revised as a result of revised discharges. The floodways were computed on the basis of equal conveyance reduction from each side of the floodplain. The results of these computations were tabulated at selected cross sections for each stream segment for which a floodway was revised and are presented in Table 2, Floodway Data.

e. Insurance Application

For flood insurance rating purposes, flood insurance zone designations are assigned to a community based on the results of the engineering analyses. These zones are as follows:

Zone AE

Zone AE is the flood insurance rate zone that corresponds to the 100-year floodplains that are determined in the Flood Insurance Study by detailed methods. Whole-foot base flood elevations derived from the detailed hydraulic analyses are shown at selected intervals within this zone.

Zone X

Zone X is the flood insurance rate zone that corresponds to areas outside the 100-year floodplain, areas of 100-year flooding where average depths are less than 1 foot, areas of 100-year flooding where the contributing drainage area is less than 1 square mile, and areas protected from the 100-year flood by levees. No base flood elevations or depths are shown within this zone.

The reach determinations, Flood Hazard Factors, and flood insurance zones presented in Sections 5.1, 5.2, and 5.3 of this report and Table 3, Flood Insurance Zone Data, are no longer applicable.

f. Flood Insurance Rate Map

The Flood Insurance Rate Map is designed for flood insurance and floodplain management applications.

For flood insurance applications, the map designates flood insurance rate zones as described in Section 9.1e and, in the 100-year floodplains that were studied by detailed methods, shows selected whole-foot base flood elevations or average depths. Insurance agents use the zones and base flood elevations in conjunction with information on structures and their contents to assign premium rates for flood insurance policies.

For floodplain management applications, the map shows by tints, screens, and symbols the 100- and 500-year floodplains, the floodways, and the locations of selected cross sections used in the hydraulic analyses and floodway computations.

g. Other Studies

The Flood Insurance Studies for Pike County, Kentucky (Reference 14) and the City of Pikeville, Kentucky (Reference 15) are being revised in conjunction with this study and will be in agreement with this study.

h. References and Bibliography

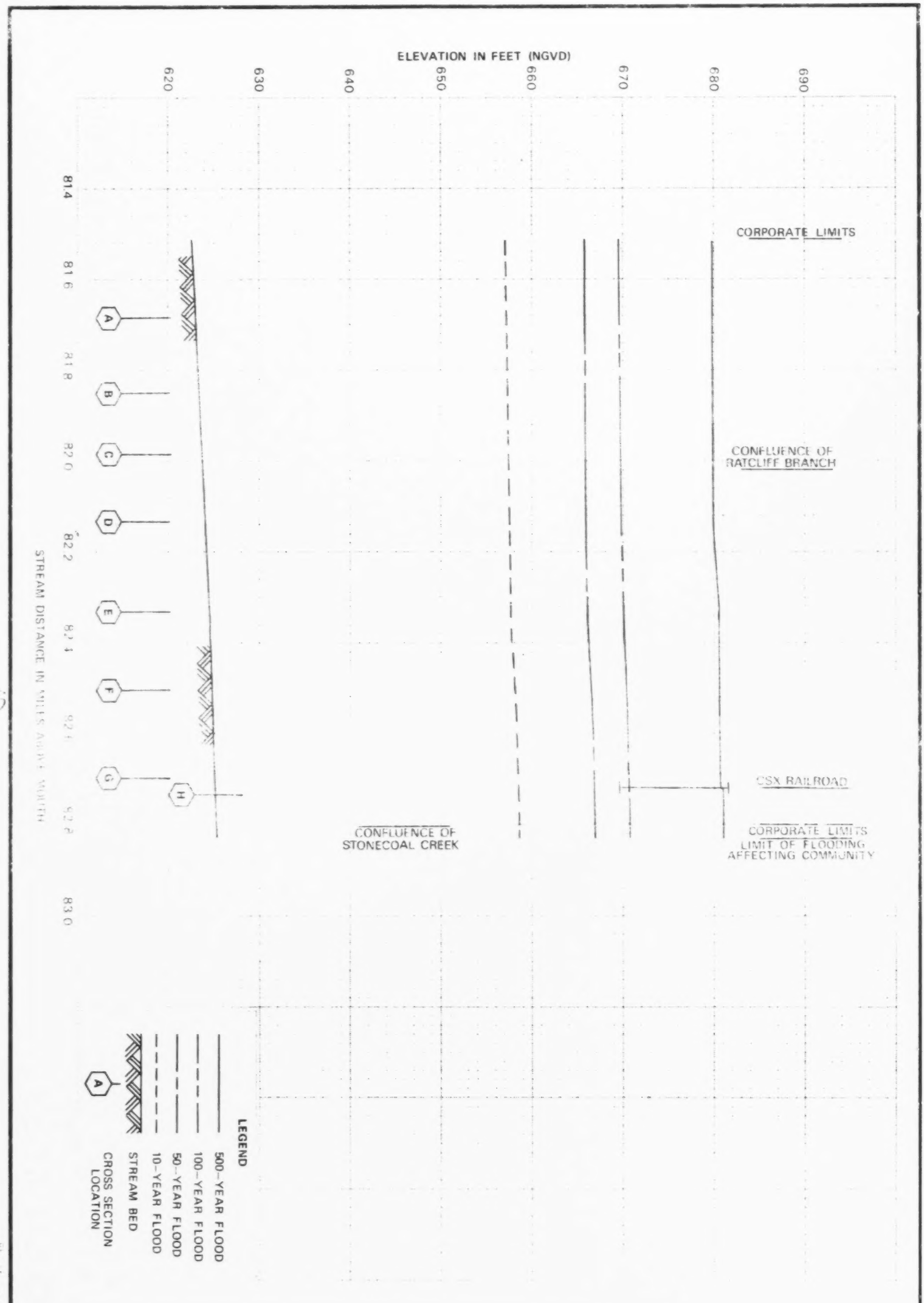
13. U.S. Army Corps of Engineers, Hydrologic Engineering Center, HEC-2 Water Surface Profiles, Computer Program 723-X6-L202A, Davis, California, April 1984.

14. Federal Emergency Management Agency, Flood Insurance Study, Pike County, Unincorporated Areas, Kentucky, April 1985, revision in progress.

15. ----------, Flood Insurance Study, City of Pikeville, Pike County, Kentucky, March 1984, revision in progress.

ELEVATION REFERENCE MARKS

REFERENCE MARK	FLOOD INSURANCE RATE MAP PANEL	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
1	0001	678.07	U.S. Coast and Geodetic Survey standard disk stamped "Y 86 1935" set vertically in northeast face of 25-foot rock cut, 12 feet southwest of southwest rail of CSX railroad tracks, about 480 feet southeast of switch stand for side track at Big Shoal, about 5.4 miles northwest of Pikeville station along CSX railroad
2	0001	683.36	chiseled "L" on concrete wingwall on upstream east side of CSX railroad bridge over Levisa Fork



01P	FEDERAL EMERGENCY MANAGEMENT AGENCY **VILLAGE OF COAL RUN, KY** (PIKE CO.)	**FLOOD PROFILES** **LEVISA FORK**